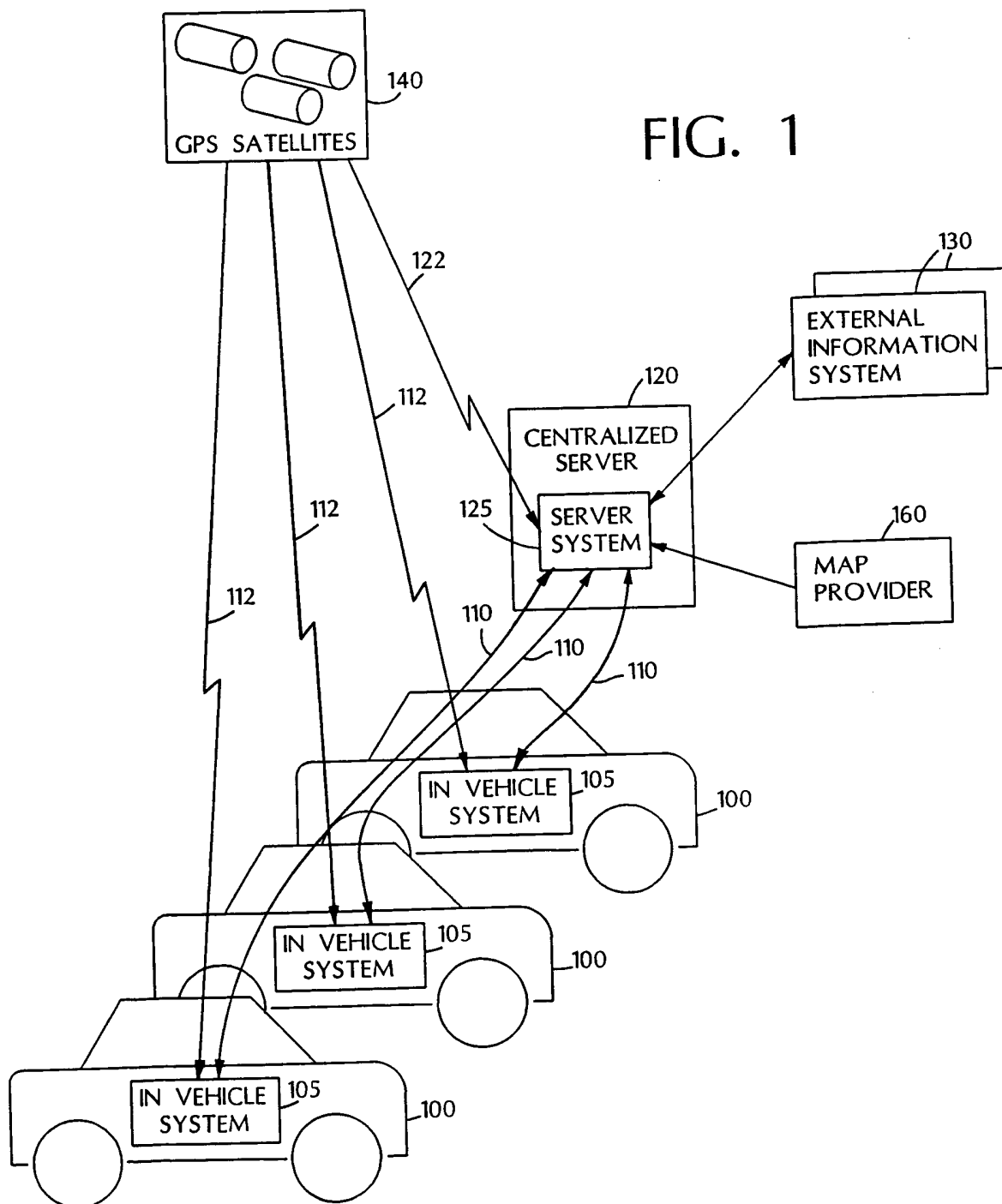


FIG. 1



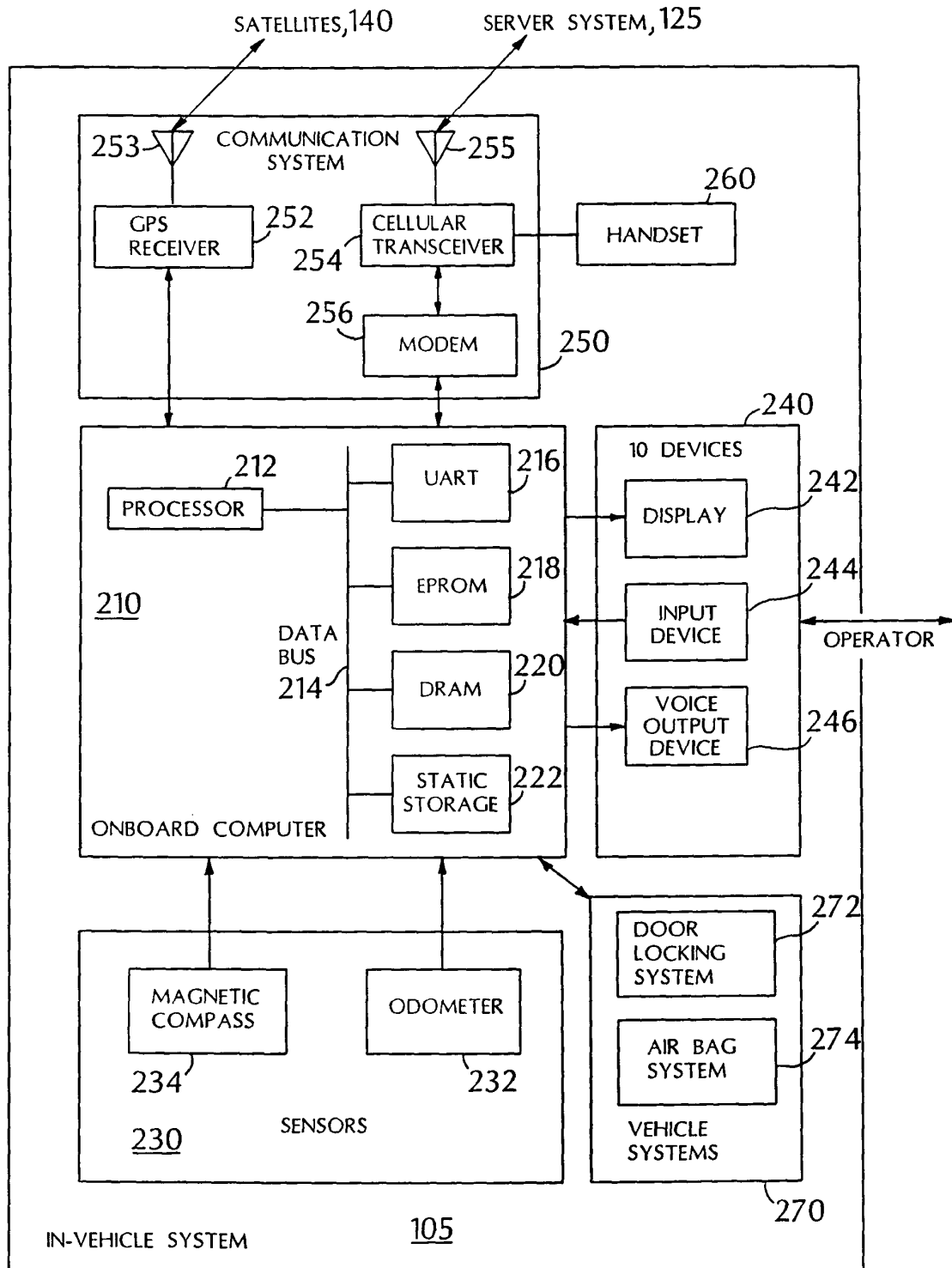
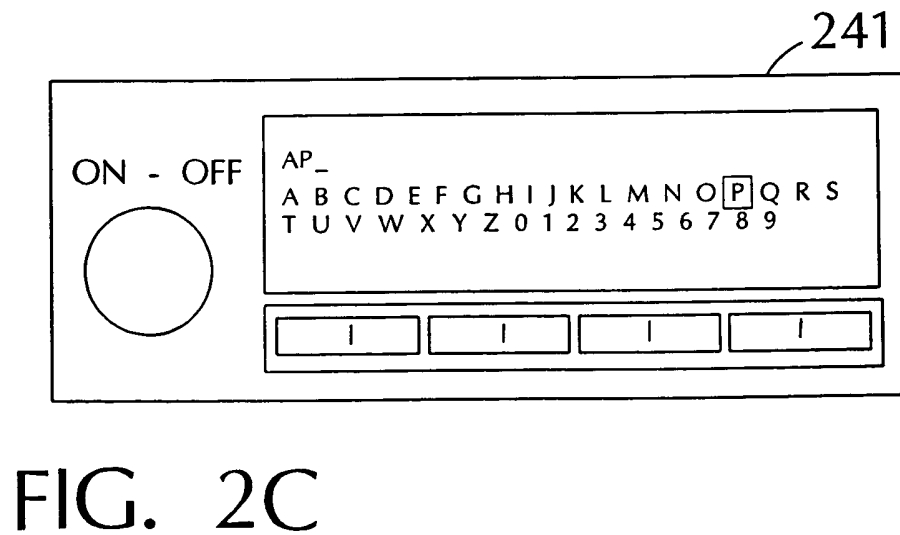
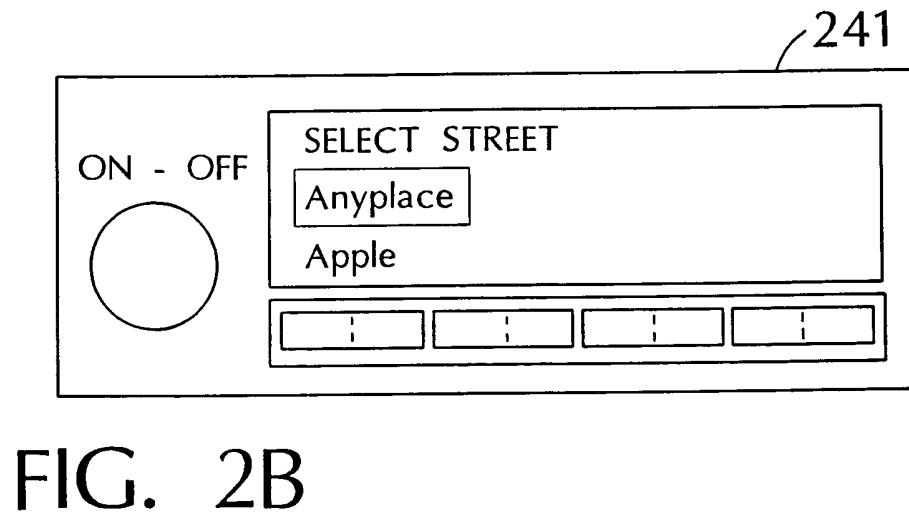
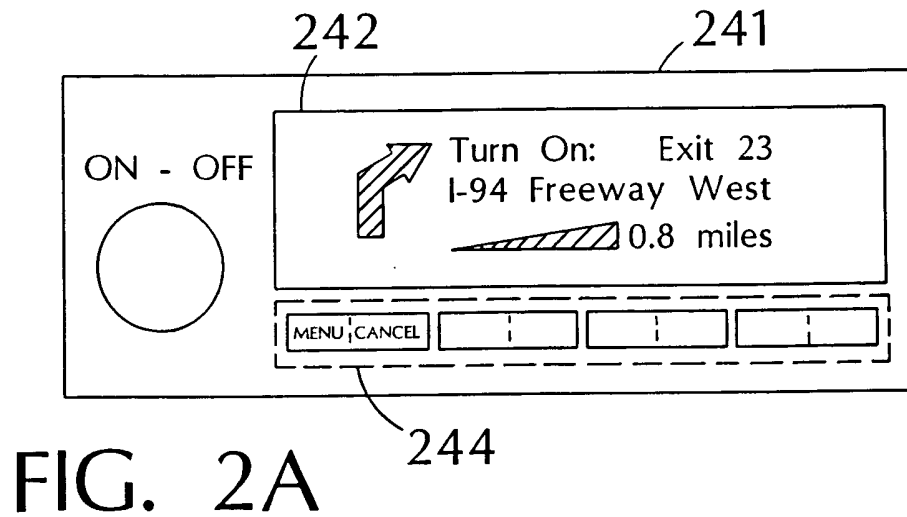


FIG. 2



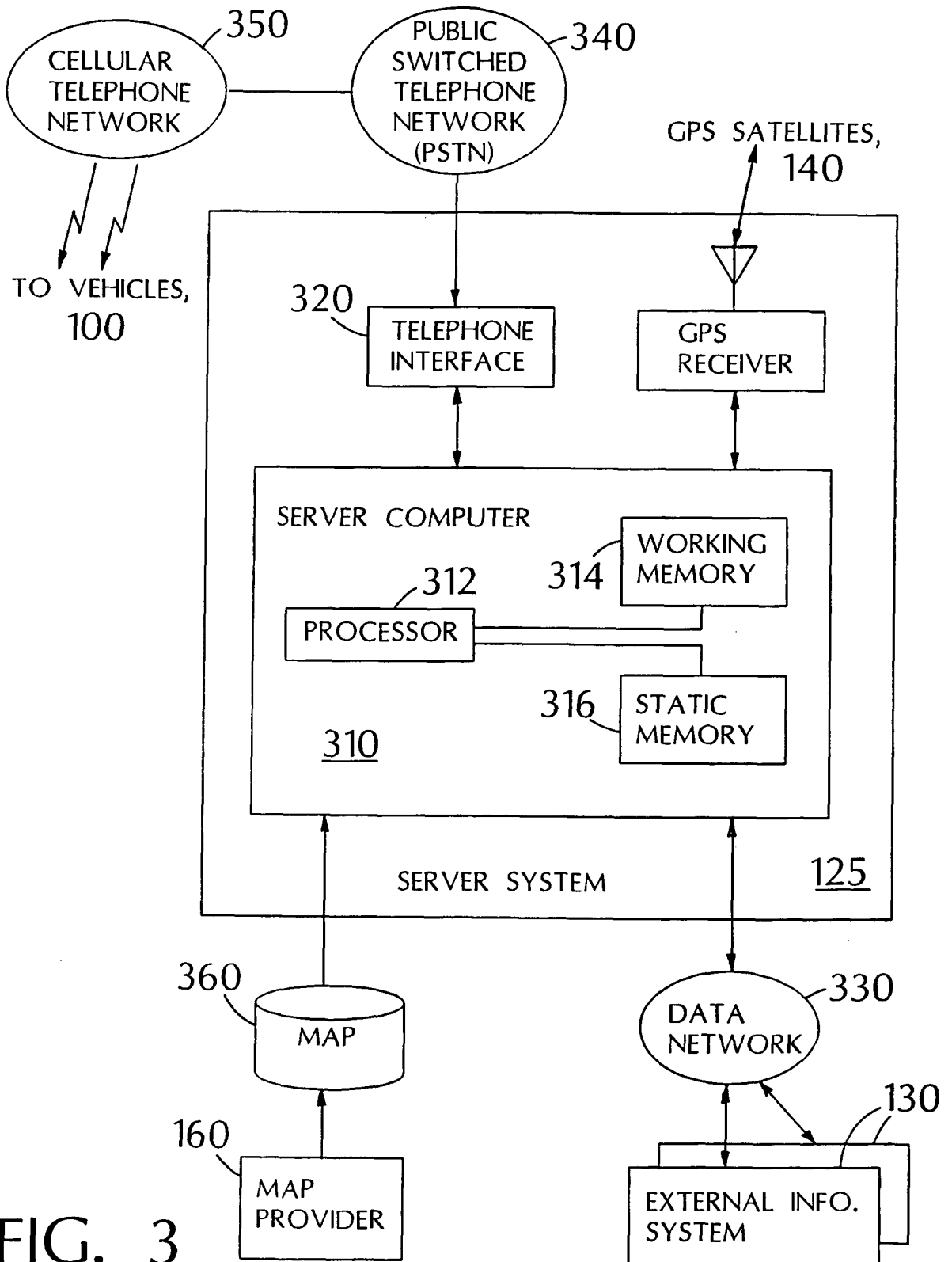


FIG. 3

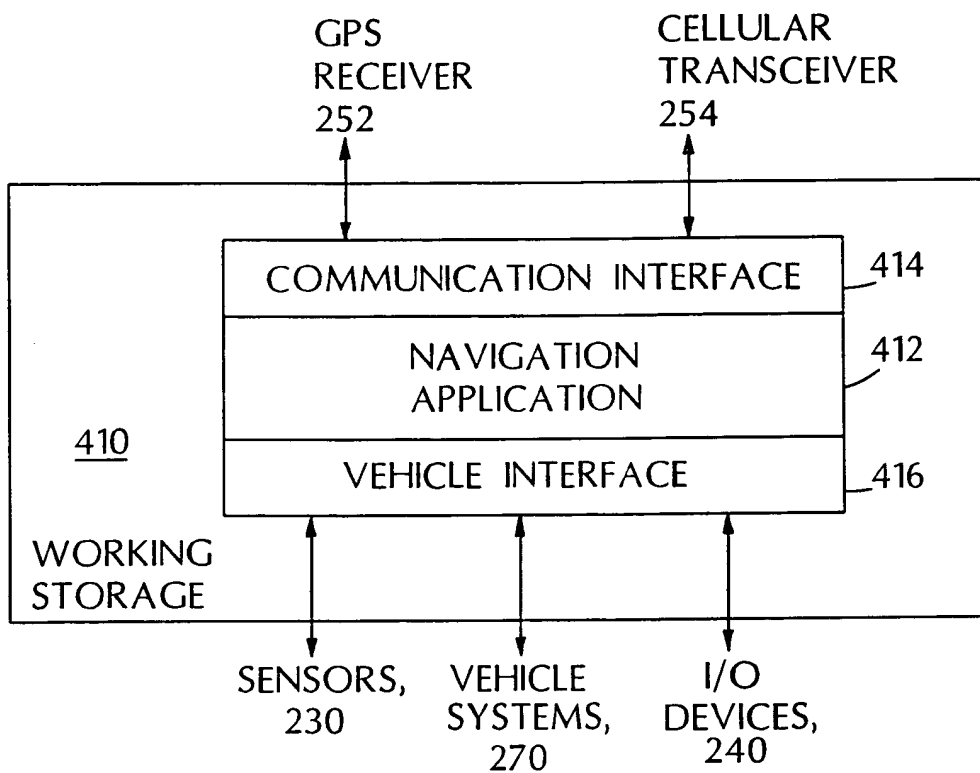


FIG. 4A

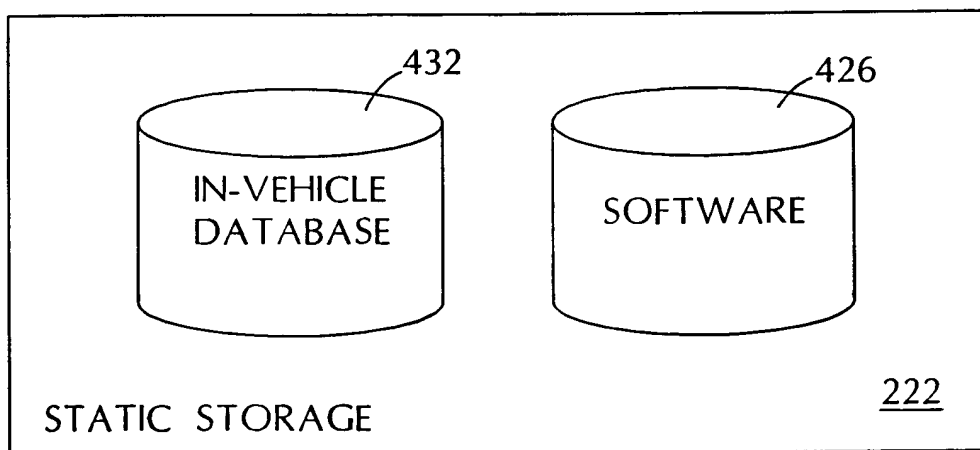
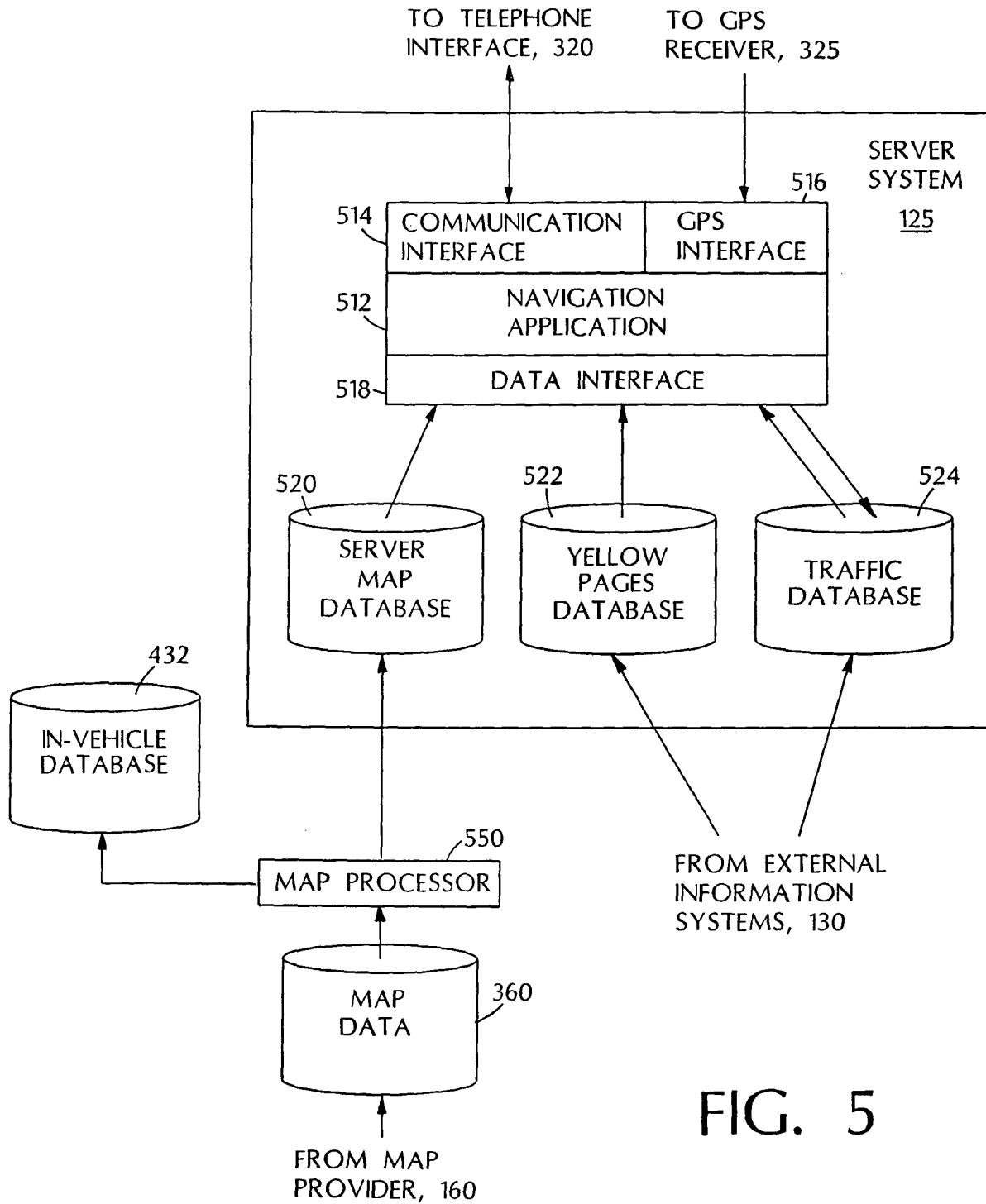


FIG. 4B



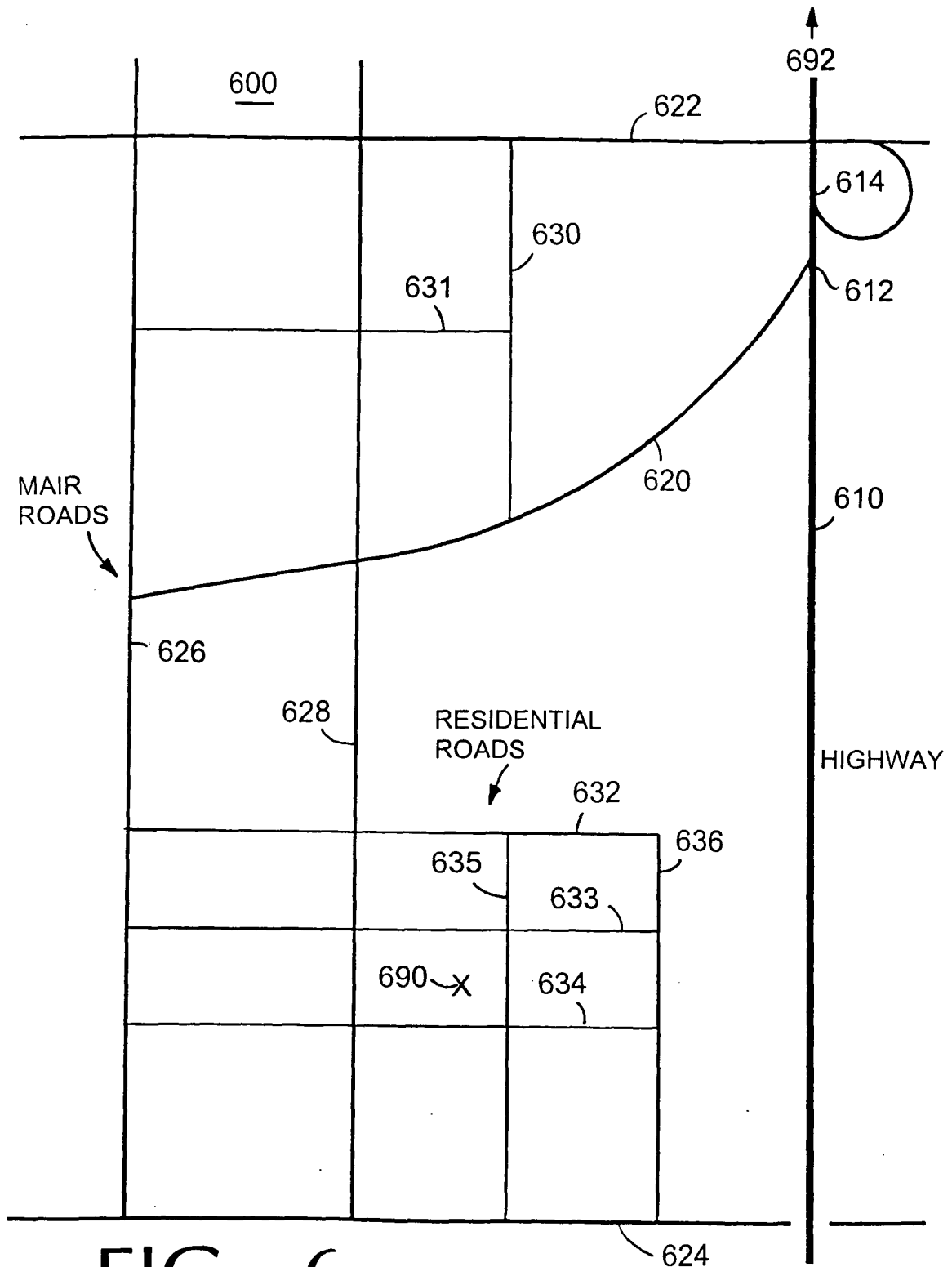


FIG. 6



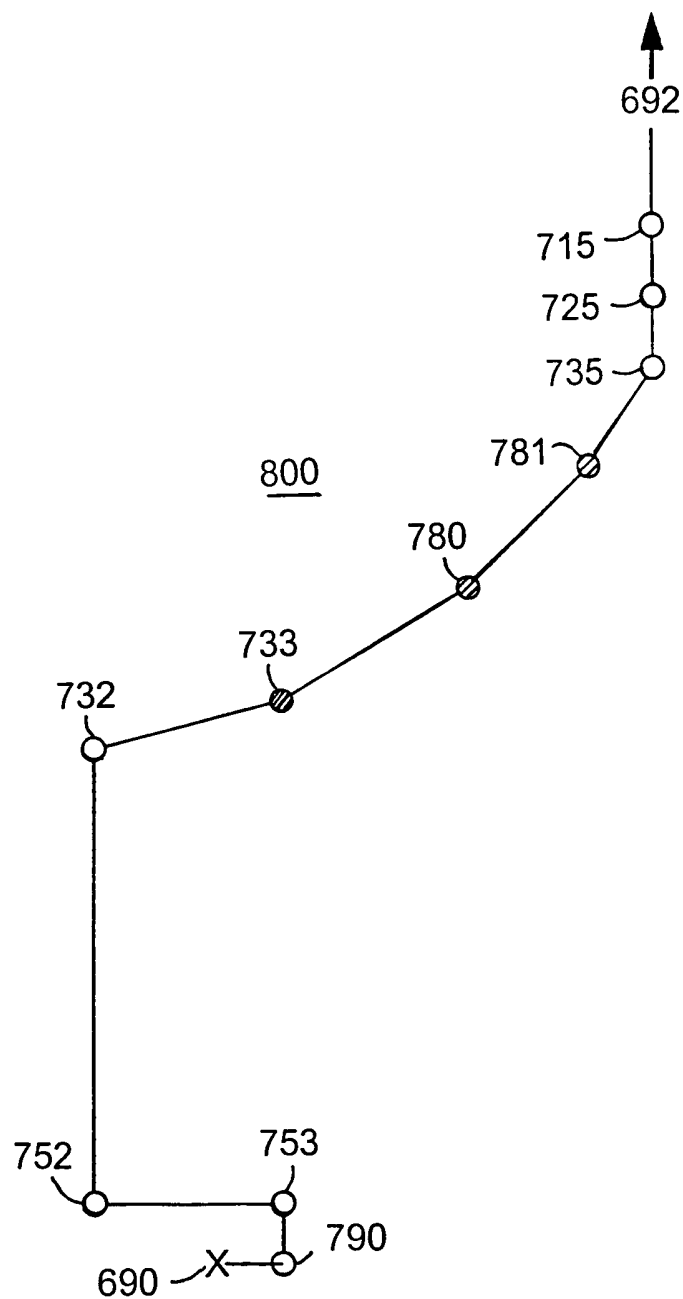
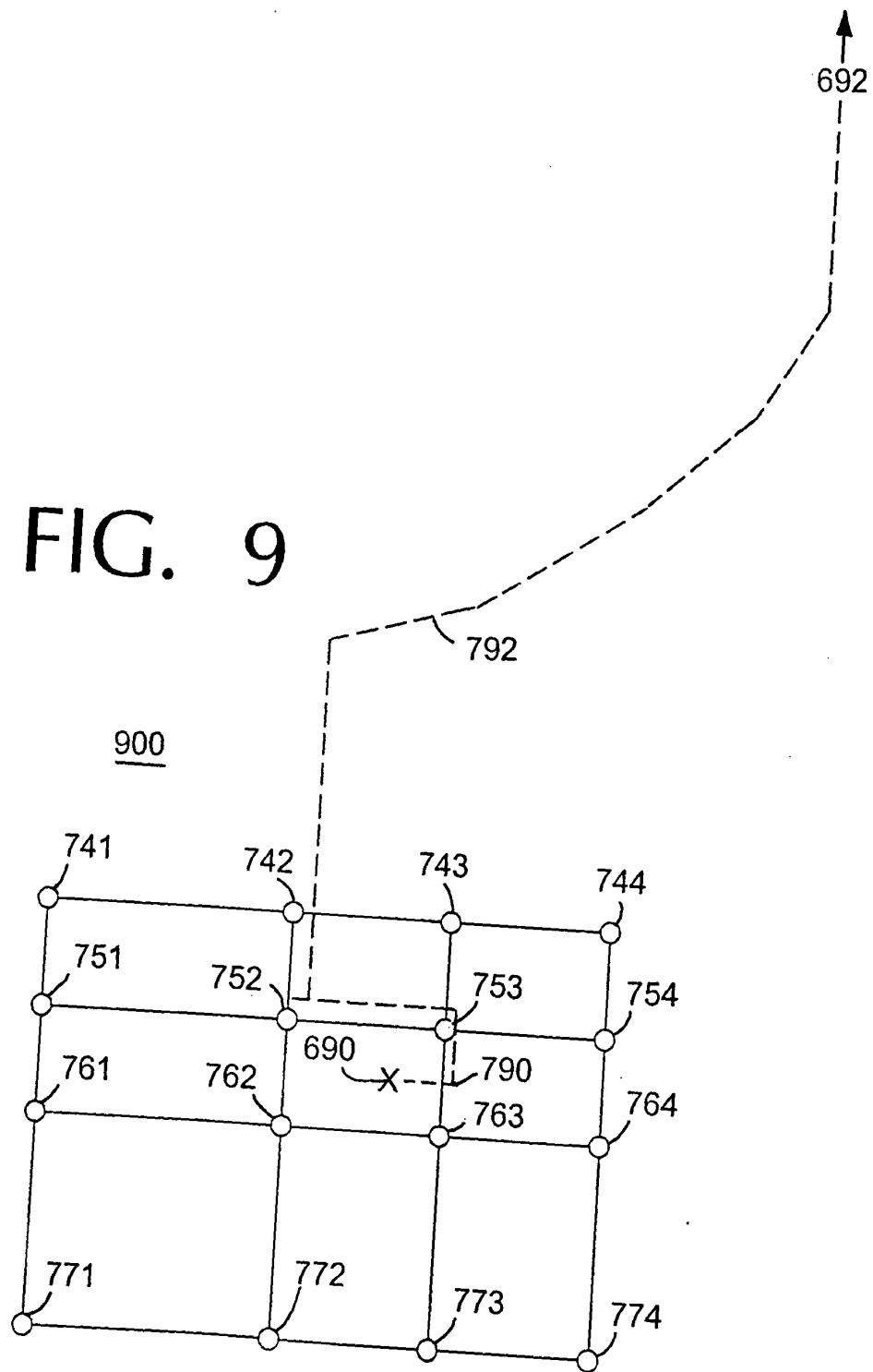


FIG 8

FIG. 9



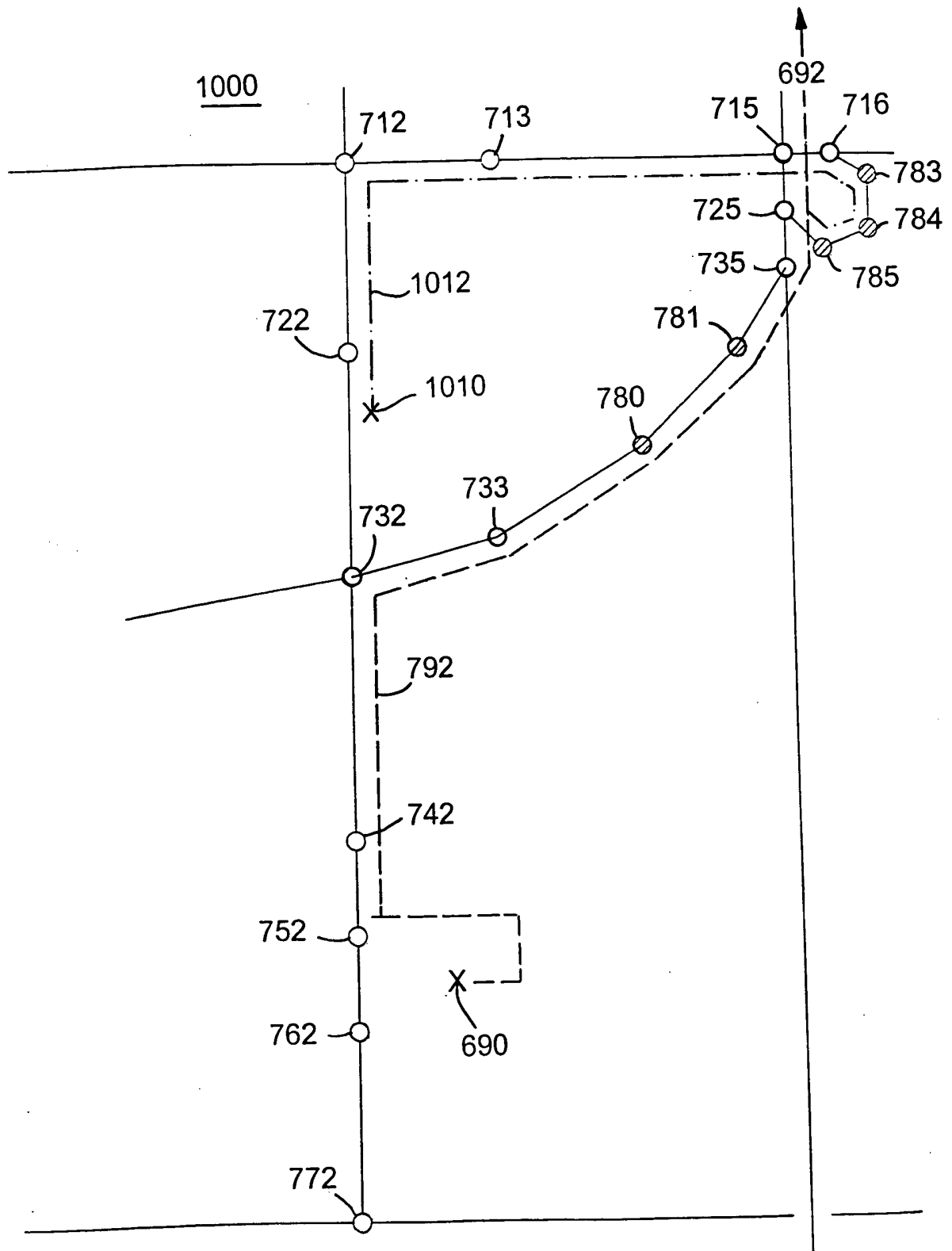


FIG. 10

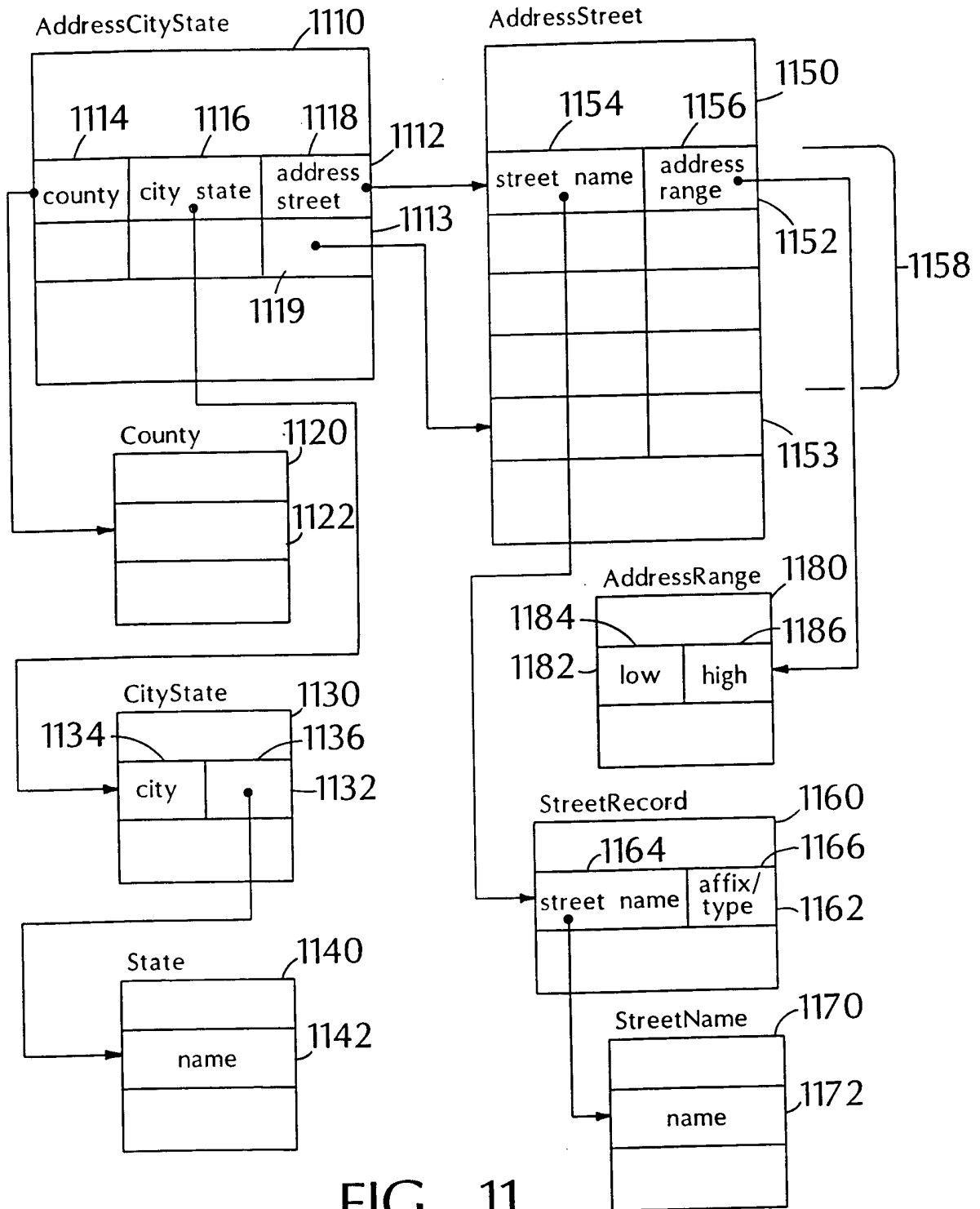


FIG. 11

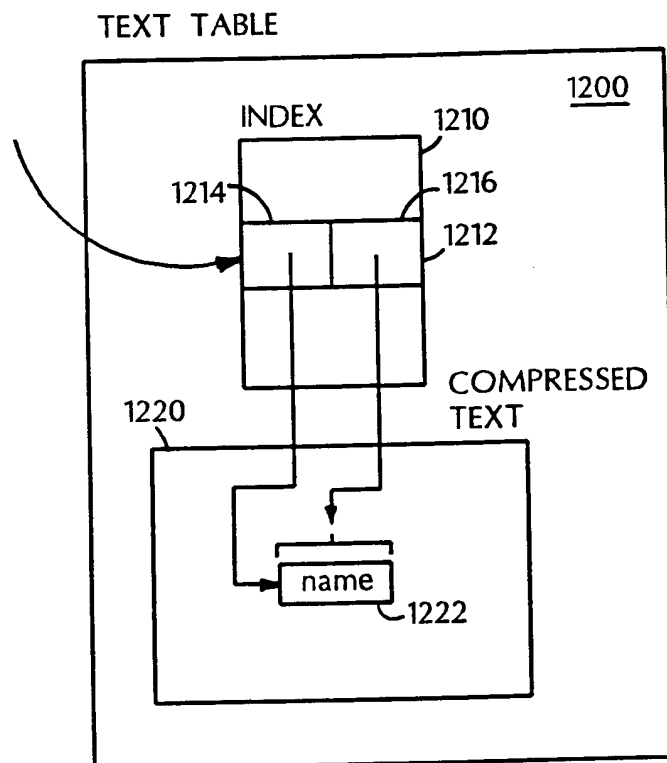


FIG. 12

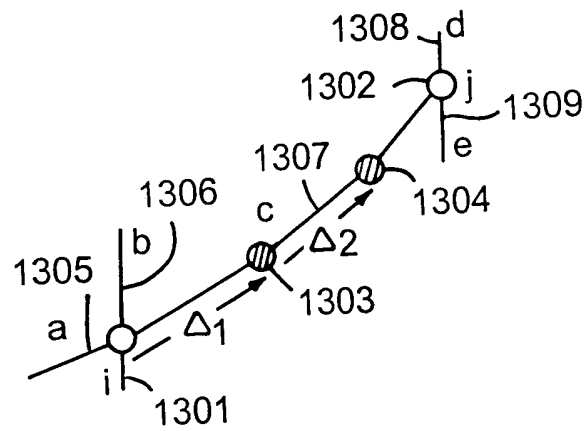
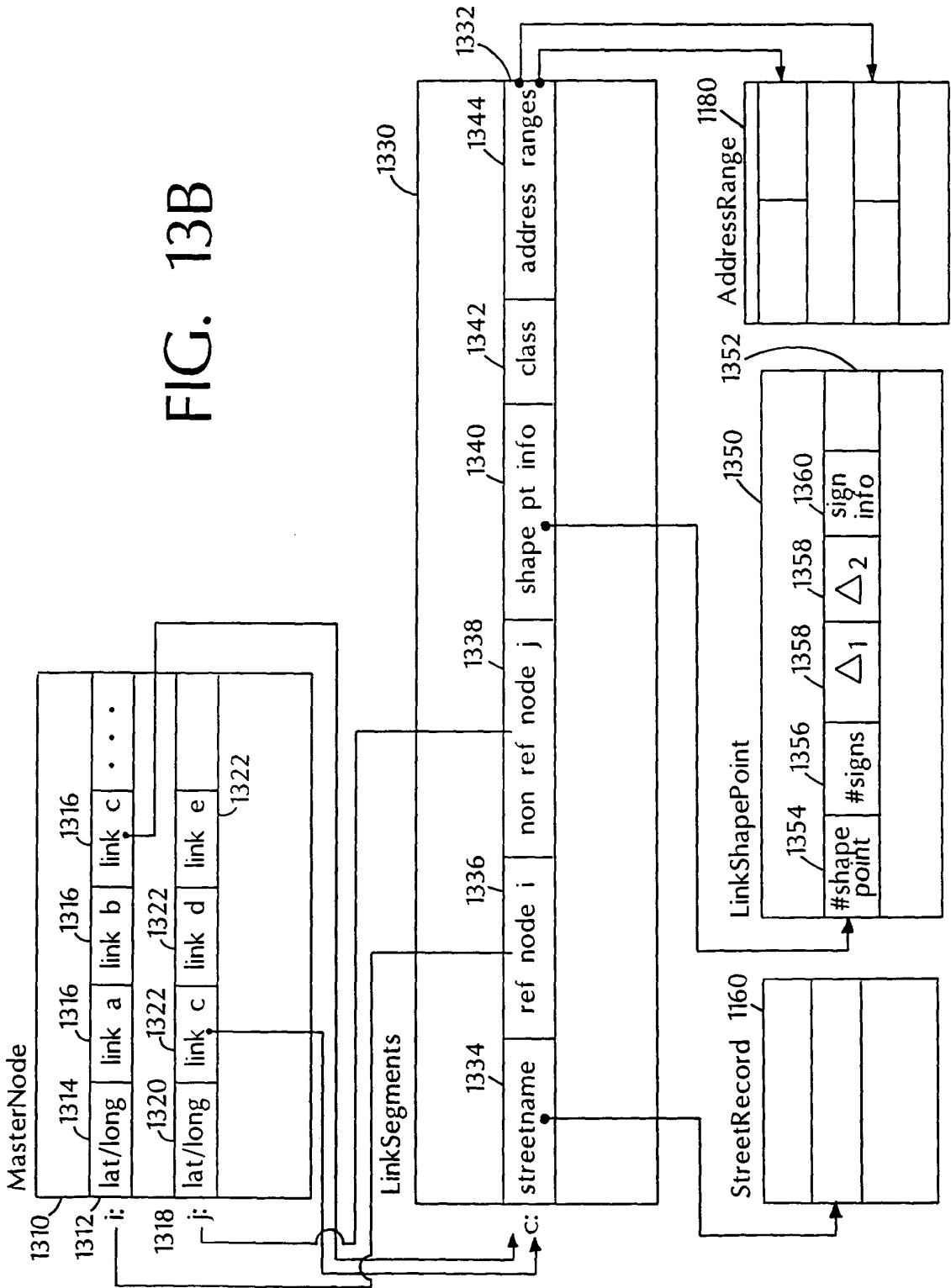
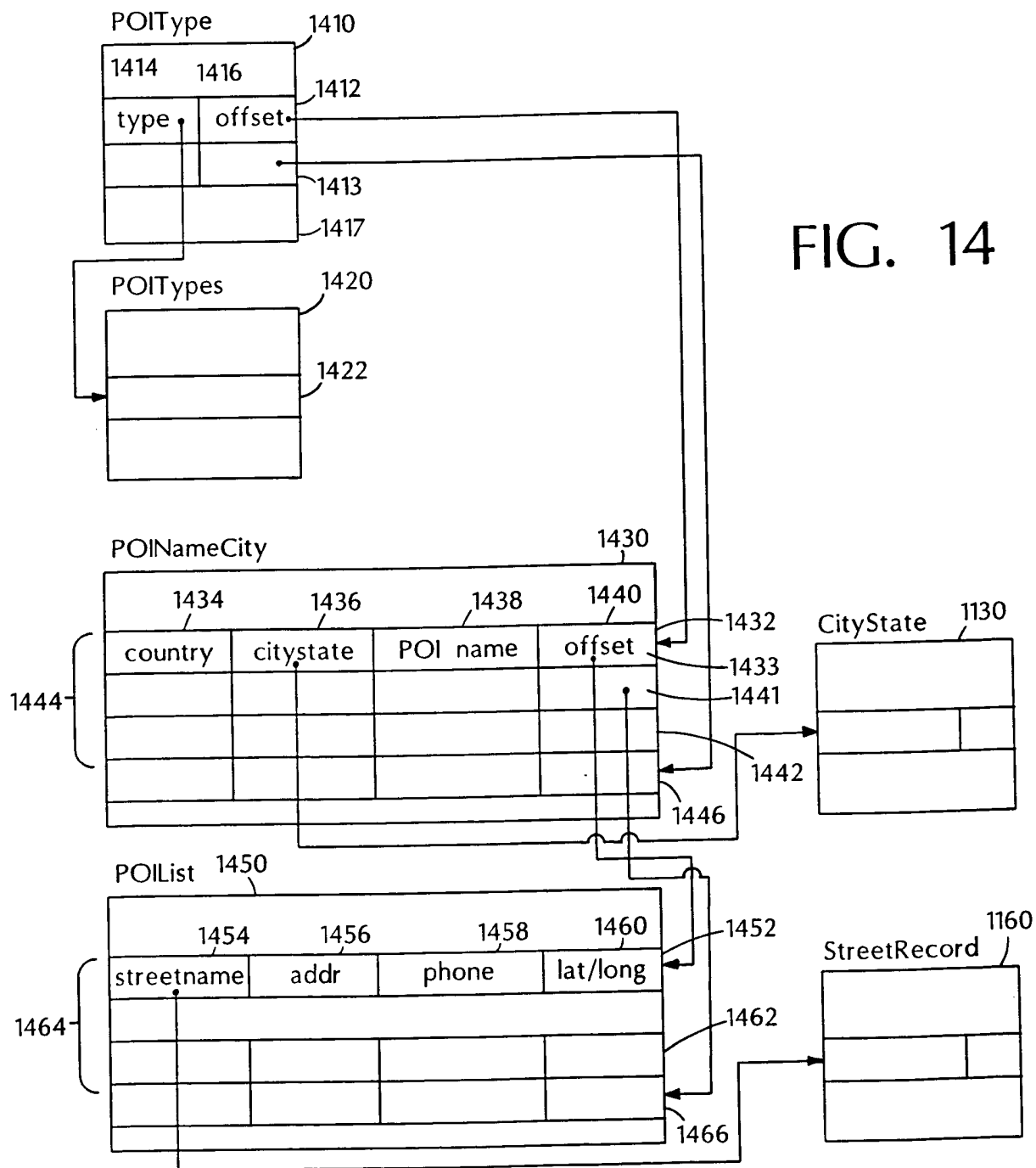


FIG. 13A

FIG. 13B





1501 **Plan Route (In-Vehicle):**

1502 Accept Destination Specification from Operator

1503 Determine Current Location Data

1504 Establish Communication Session with Server

1505 Send Destination Specification and Current Location Data to Server

1506 IF Destination Specification Requires Server Interaction THEN

1507 Accept Secondary Destination Specification Data from Server

1508 Accept Secondary Destination Specification from Operator

1509 Send Secondary Destination Specification to Server

1510 END IF

1511 Wait for Server Response

1512 Receive Planned Route, Spot Map, and Differential GPS Data from Server

1513 Close Communication Session with Server

FIG. 15A

1551 **Plan Route (Server):**

1552 Accept Communication Session with Vehicle

1553 Receive Destination Specification and Current Location Data from Vehicle

1554 Determine DGPS Correction Data

1555 Determine Vehicle Location

1556 IF Destination Specification Requires Further Operator Input THEN

1557 Determine Secondary Destination Specification Data

1558 Send Secondary Destination Specification Data to Vehicle

1559 Receive Secondary Destination Specification from Vehicle

1560 END IF

1561 Determine Planned Route to Specified Destination

1562 Determine Spot Map near Vehicle Location

1563 Send Planned Route, Spot Map, and DGPS Data to Vehicle

1564 Close Communication Session with Vehicle

FIG. 15B

1601 **Startup Maneuvers:**

1602 Initialize Estimated Location using Differential GPS Data

1603 WHILE Estimated Location is not at a Point of the Planned Route DO

1604 Track Estimated Location using (D)GPS Data

1605 Display Spot Map and Estimated Location on Display

1606 END WHILE

FIG. 16

1801 **Replan Route:**

1802 Estimate Vehicle Location of Main Roads Network using

1803 Dead-Reconing Location

1804 Calculate Best Route to a Maneuver or Way Point on the Previous

1805 Planned Route

1806 Replace Planned Route with Newly Calculated Route

1807 GOTO Follow Route

FIG. 18

```
1701  Follow Route:
1702  FOR Each Link on Planned Route DO
1703      At Initial Maneuver Initialize Off-Route Tolerance
1704      WHILE Vehicle Is Travelling to the Next Maneuver Point DO
1705          Increase Off-Route Tolerance
1706          Track Dead-Reckoning Location
1707          Track (D)GPS Location
1708          IF (Dead-Reckoning Location is more than Off-Route Tolerance
1709              from (D)GPS Location THEN
1710              GOTO Replan Route
1711          END IF
1712          IF Dead-Reckoning Location is within Maneuver
1713              Notification Window THEN
1714              Notify Operator of Next Maneuver
1715          END IF
1716          IF Dead-Reckoning Location is within Maneuver
1717              Detection Window THEN
1718              IF Next Maneuver is Detected THEN
1719                  Update Dead-Reckoning Location
1720                  Update DGPS Data
1721              END IF
1722          END IF
1723      UNTIL Maneuver was Detected OR
1724          Vehicle Leaves Maneuver Detection Window
1725  UNTIL Destination is Reached
```

FIG. 17

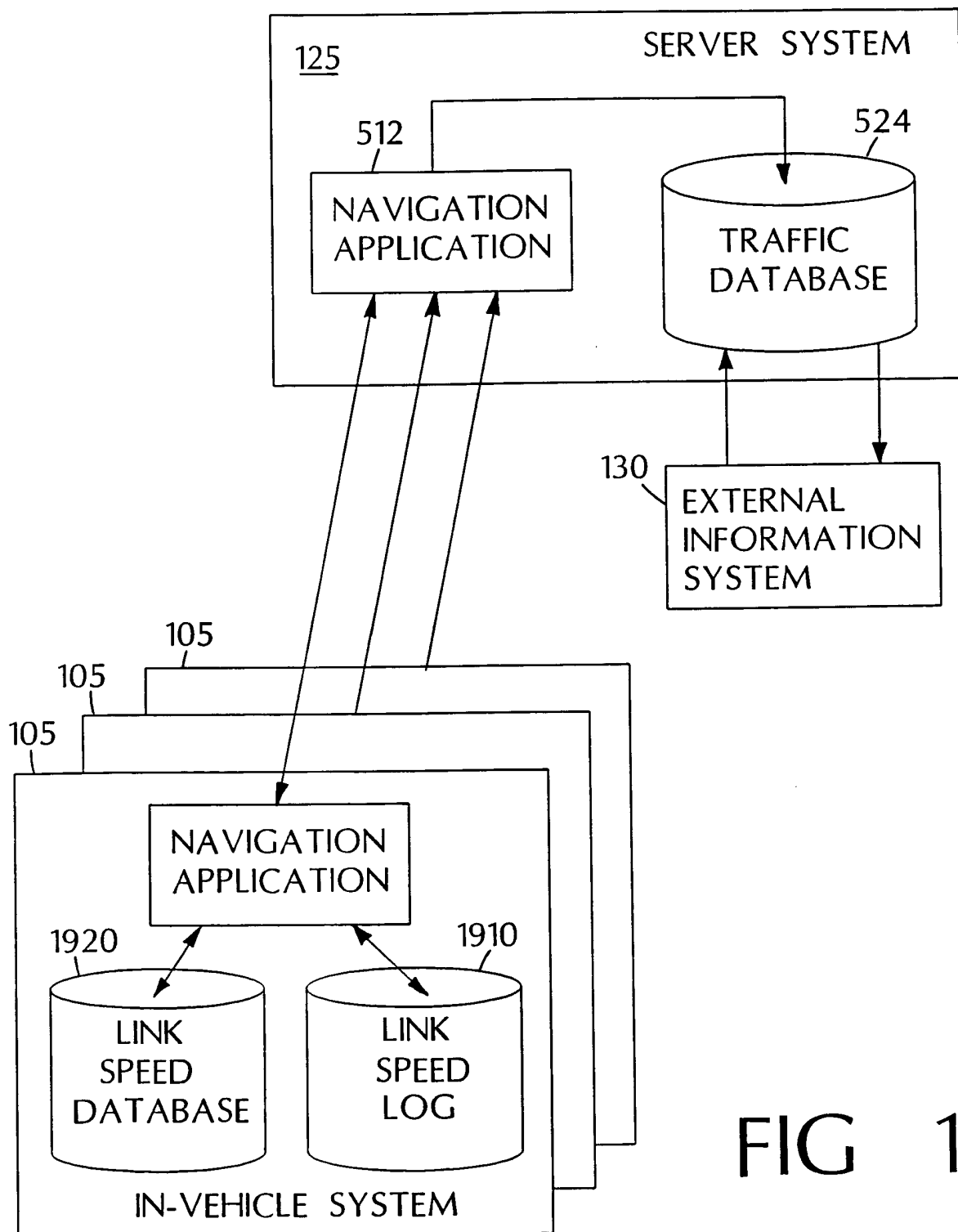


FIG 19

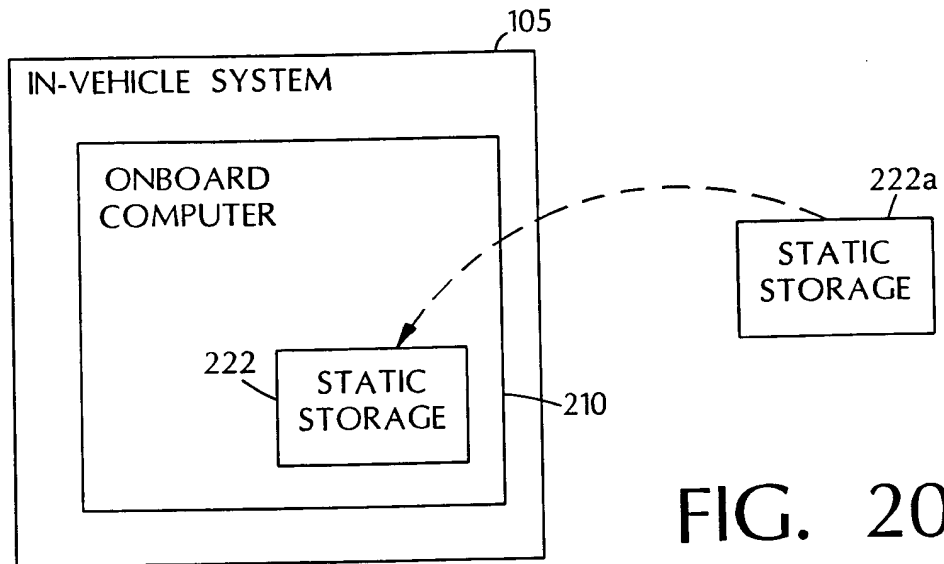


FIG. 20A

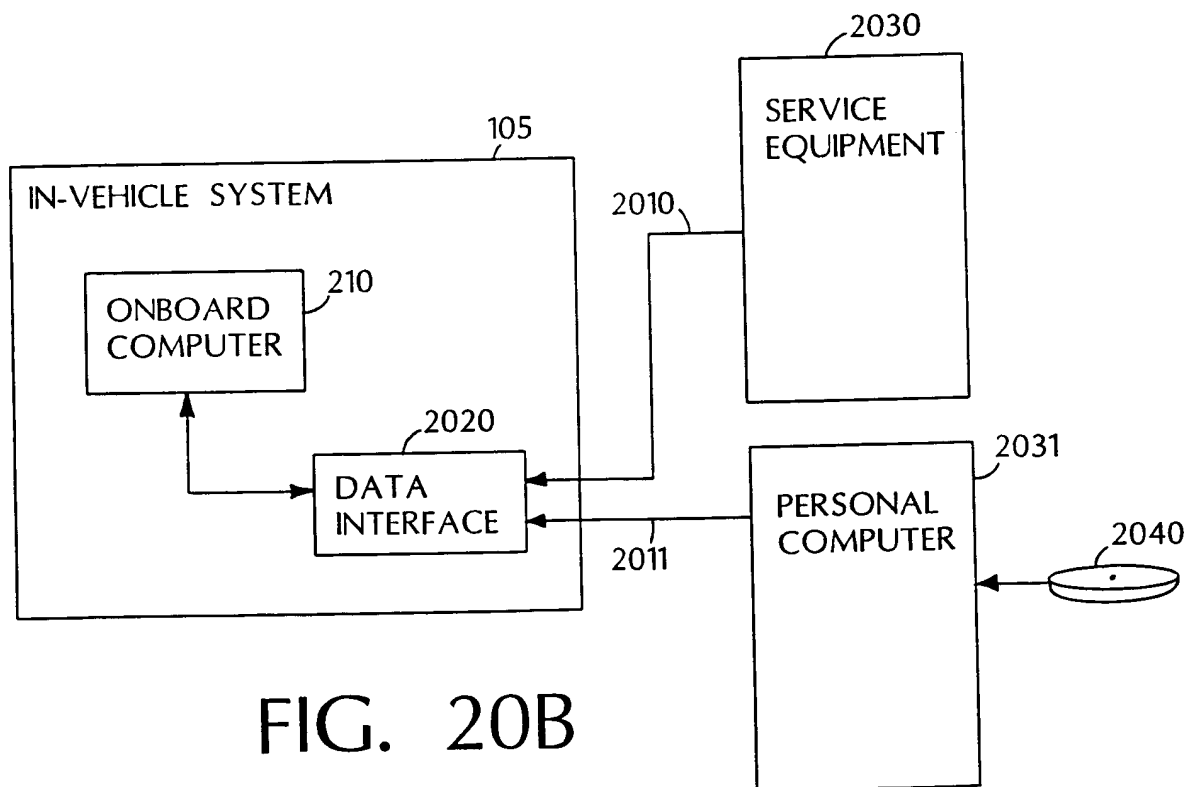


FIG. 20B

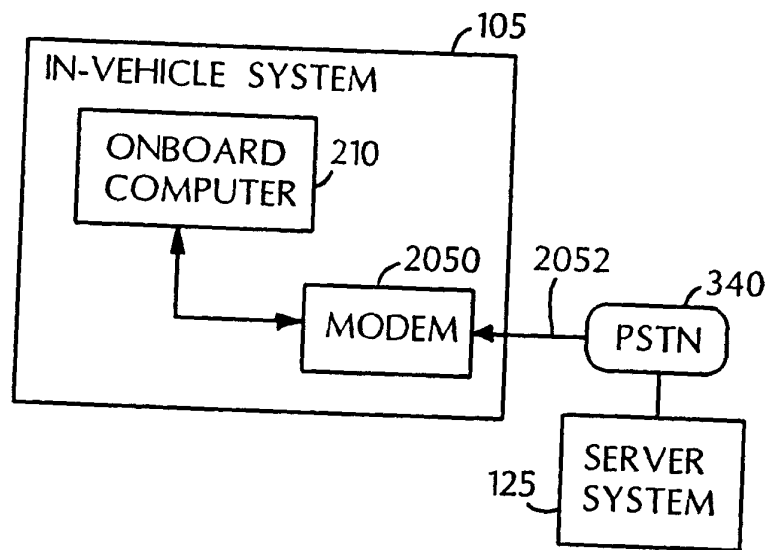
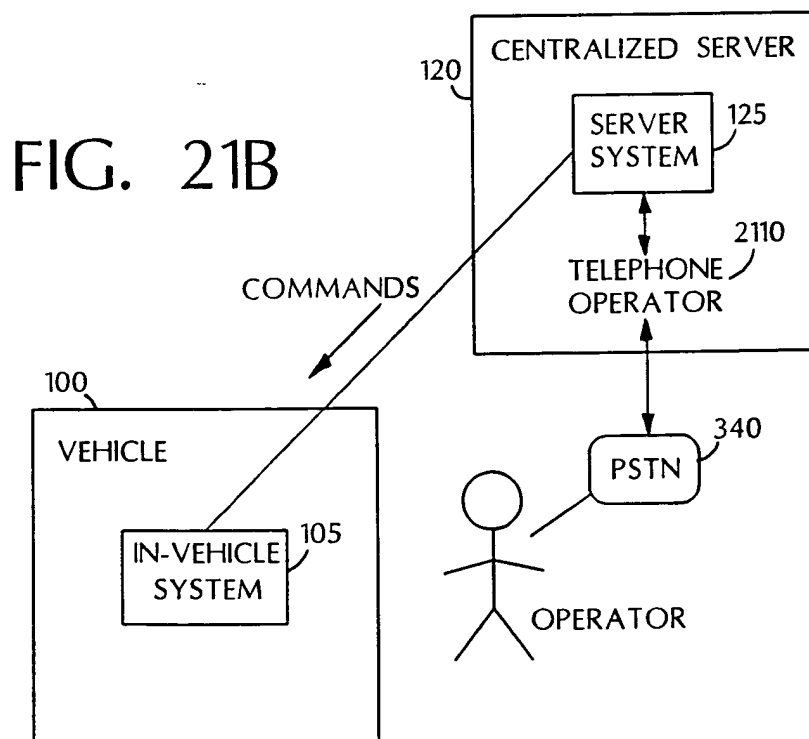
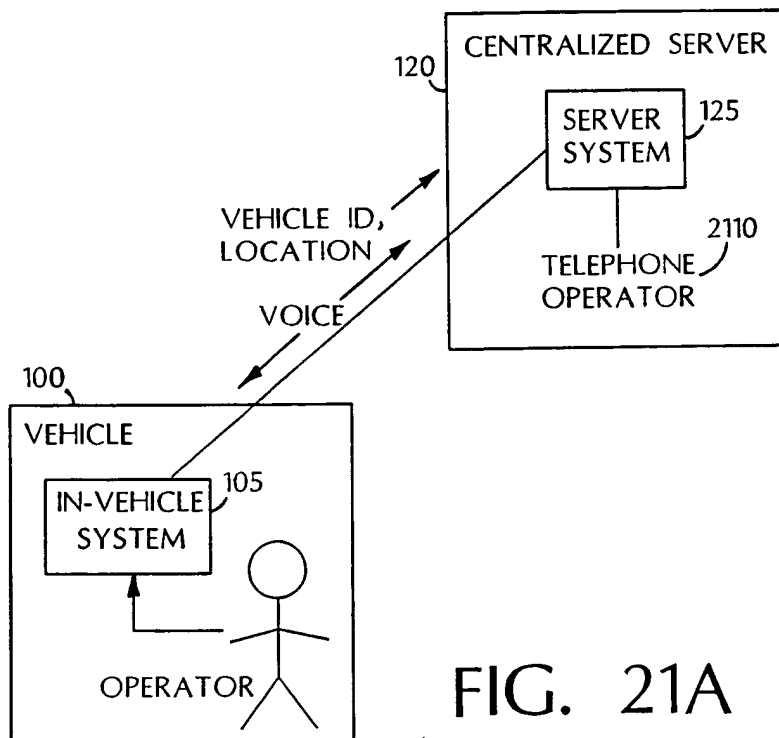


FIG. 20C



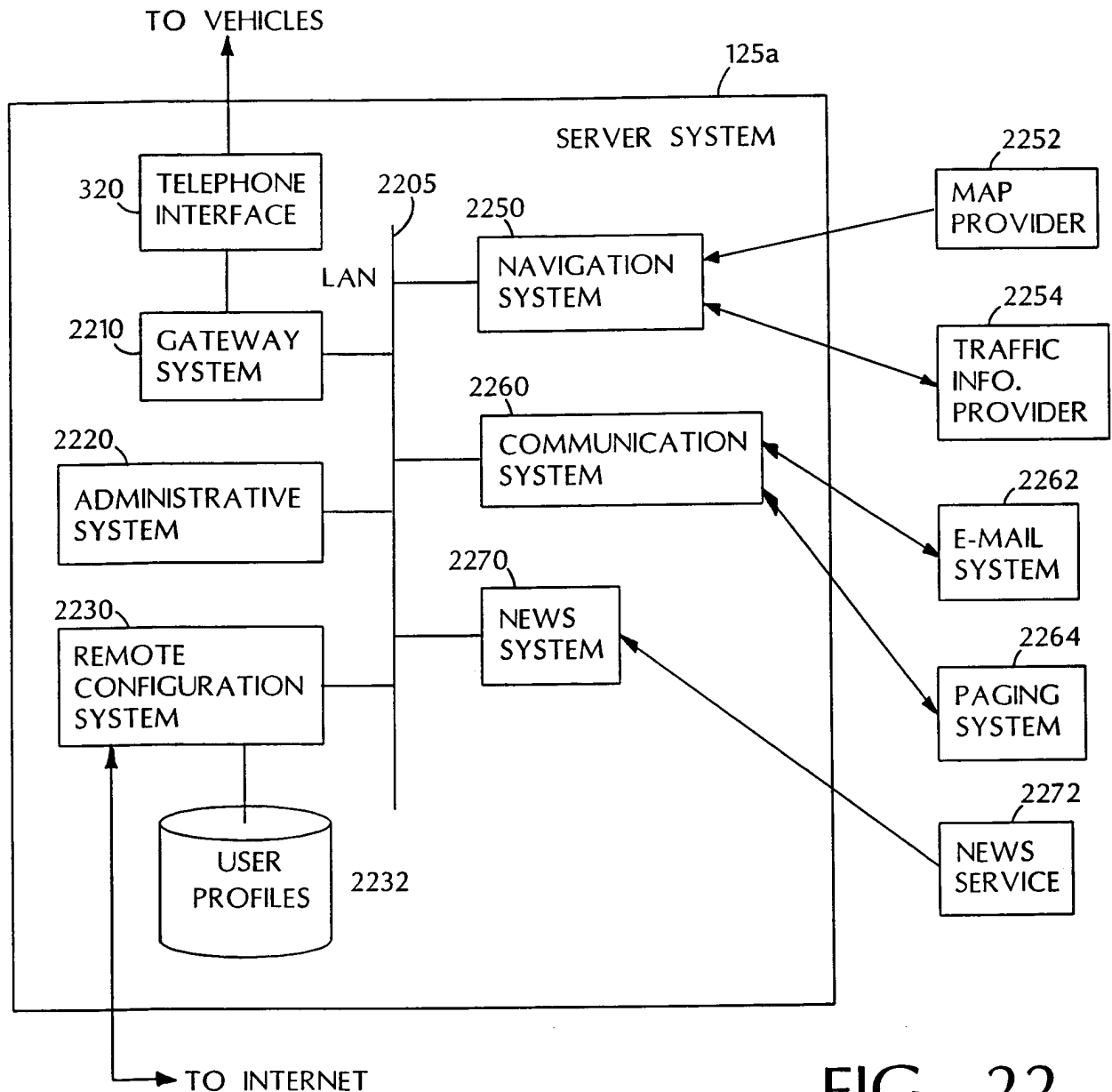


FIG. 22